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10/815,653

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Shunpei Yamazaki

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9676

31780

7590

12/16/2005

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EXAMINER

SEFER, AHMED N

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/815,653

Applicant(s)

YAMAZAKI ET AL.

Examiner

A. Sefer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 35-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 35-67 is/are allowed.
- 6) ☒ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 08/575,355.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group II (claims 35-67) in the reply filed on 9/27/2005 is acknowledged and claims 1-34 have been cancelled.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, the phrase "filmy" renders the claim(s) indefinite because it is not clear if the substrates are film substrates or similar to film substrates, thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 35, 37, 39, 41, 43, 45, 60, 66 and 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Wakai et al. ("Wakai") USPN 5,229,644.

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Wakai discloses in figs. 3-13 a display device comprising: a pair of filmy substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (as in claim 66) or an inverted-staggered thin film transistor (as in claim 67) formed over one of the pair of filmy substrates, wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon (as in claims 43 and 45); a layer 108 comprising a resinous material comprising acrylic resin (as in claim 60) (col. 4, line 65) or a silicon oxide 103 (as in claims 37, 41 and 45) covering the thin film transistor; and a pixel electrode 110 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) being provided on a surface of one of the pair of filmy substrates (as in claims 39, 41, 43 and 45).

5. Claims 35, 37, 39, 41, 43, 45, 66 and 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishiki et al. ("Nishiki") JP 63-279228.

Nishiki discloses in figs. 3-13 a display device comprising: a pair of filmy substrates 21/31 facing each other; a thin film transistor 15 comprising a coplanar thin film transistor (as in claim 66) or an inverted-staggered thin film transistor (as in claim 67) formed over one of the pair of filmy substrates, wherein the thin film transistor has a channel formation region 25 comprising amorphous silicon (as in claims 43 and 45); a layer 57 comprising a resinous material or a silicon oxide 23 (as in claims 37, 41 and 45) covering the thin film transistor; and a pixel electrode 51 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 57) being provided on a surface of one of the pair of filmy substrates (as in claims 39, 41, 43 and 45).

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Regarding the recitation (claims 37, 41 and 45) calling for “...formed by applying a liquid”, it refers to a process and “product by process” claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685 and *In re Thorpe*, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 36, 38, 40, 42, 44, 46, 60, 61, 64-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Takenouchi et al. (“Takenouchi”) USPN 5,627,404.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (as in claim 66) or an inverted-staggered thin film transistor (as in claim 67), wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon (as in claim 44) formed over one of the pair substrates; a layer 108 comprising a resinous material or a silicon oxide 103 (as in claims 38, 42 and 46) covering the thin film transistor; and a pixel electrode 110 formed over the layer or silicon oxide (as in claims 38, 42 and 46), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108)

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comprising acrylic resin (as in claim 60) (col. 4, line 65) being provided on a surface of one of the pair of substrates (as in claims 40, 42, 44 and 46), but lacks anticipation of flexible substrates.

Takenouchi discloses (col. 3, lines 49-55) a device comprising a flexible substrate selected from PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite), and polyimide (as in claim 65) or plastic (as in claim 64).

Therefore, in view of Takenouchi's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating flexible substrates since that would make handling easier as taught by Takenouchi.

Regarding the recitation (claims 38, 42 and 46) calling for " ... formed by applying a liquid", it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685 and *In re Thorpe*, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

Regarding claim 61, Takenouchi discloses (col. 3, lines 55-60) a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2- ethylhexyl esters of acrylic acid.

8. Claims 47, 49, 51, 53, 55, 57, 59, 60, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Wakai et al. USPN 5,821,137 ("Wakai '37").

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Wakai discloses in figs. 3-13 a display device comprising: a pair of filmy substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (as in claim 66) or an inverted-staggered thin film transistor (as in claim 67) formed over one of the pair of filmy substrates, wherein the thin film transistor has a channel formation region 104; a layer 108 comprising a resinous material comprising acrylic resin (as in claim 60) (col. 4, line 65) or a silicon oxide 103 (as in claims 49, 53 and 57) covering the thin film transistor; and a pixel electrode 110 formed over the layer or the silicon oxide (as in claims 49, 53 and 57), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) is provided on a surface of one of the pair of filmy substrates, but lacks anticipation of microcrystalline silicon.

Wakai '37 discloses utilizing a laser light comprising excimer laser light (as in claim 59) to form a channel formation region of a thin transistor comprising microcrystalline silicon.

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Wakai's device by incorporating a channel formation region comprising microcrystalline silicon since that would reduce leakage current as taught by Wakai '37.

Regarding the recitation (claims 49, 53 and 57) calling for "...formed by applying a liquid", it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685 and *In re Thorpe*, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note

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that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

9. Claims 48, 50, 52, 54, 56, 58-60, 64-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Takenouchi and Wakai '37.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (as in claim 66) or an inverted-staggered thin film transistor (as in claim 67), wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon formed over one of the pair substrates; a layer 108 comprising a resinous material or a silicon oxide 103 (as in claims 50, 54 and 58) covering the thin film transistor; and a pixel electrode 110 formed over the layer or silicon oxide (as in claims 50, 54 and 58), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) comprising acrylic resin (as in claim 60) (col. 4, line 65) being provided on a surface of one of the pair of substrates (as in claims 40, 42, 44 and 46), but lacks anticipation of flexible substrates and microcrystalline silicon.

Takenouchi discloses (col. 3, lines 49-55) a device comprising a flexible substrate selected from PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite), and polyimide (as in claim 65) or plastic (as in claim 64).

Wakai '37 discloses utilizing a laser light comprising excimer laser light (as in claim 59) to form a channel formation region of a thin transistor comprising microcrystalline or crystalline (as in claims 52, 54, 56 and 58) silicon.



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Therefore, in view of Takenouchi's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating flexible substrates since that would make handling easier as taught by Takenouchi. It would have been obvious to modify Wakai's device by incorporating a channel formation region comprising microcrystalline/crystalline silicon since that would reduce leakage current as taught by Wakai '37.

Regarding the recitation (claims 50, 54 and 58) calling for "...formed by applying a liquid", it refers to a process and "product by process" claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685 and *In re Thorpe*, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

10. Claims 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Takenouchi.

Wakai discloses the device structure as recited in the claim, but lacks anticipation a substrate selected from PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite), and polyimide.

Takenouchi discloses (col. 3, lines 49-55) a device comprising a substrate selected from PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite), and polyimide or plastic (as in claim 63).

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Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Wakai's device by incorporating Takenouchi's teachings since that would make handling easier as taught by Takenouchi.

Regarding claim 61, Takenouchi discloses (col. 3, lines 55-60) a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2-ethylhexyl esters of acrylic acid.

11. Claims 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Wakai '37 as applied to claims 47, 49, 51, 53, 55, 57 above, and further in view of Takenouchi.

The combined references disclose the device structure as recited in the claim, but lack anticipation a substrate selected from PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite), and polyimide.

Takenouchi discloses (col. 3, lines 49-55) a device comprising a substrate selected from PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite), and polyimide or plastic (as in claim 63).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the device by incorporating Takenouchi's teachings since that would make handling easier as taught by Takenouchi.

Regarding claim 61, Takenouchi discloses (col. 3, lines 55-60) a resinous layer comprising methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2-ethylhexyl esters of acrylic acid.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS  
December 9, 2005

  
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